Professor Bennett
with Dr Paterson's Compts

AN ACCOUNT

OF THE

EPIDEMIC FEVER OF 1847-48,

MORE ESPECIALLY AS

DEDUCED FROM THE STATISTICAL RECORDS OF THE EXTRA ACCOMMODATION OF THE ROYAL INFIRMARY;

WITH

A SUGGESTION AND PLAN FOR IMPROVED AND MORE ECONOMICAL TEMPORARY ERECTIONS FOR FUTURE OCCASIONS.

BY

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AN ACCOUNT, &c.

The city of Edinburgh and neighbouring town of Leith furnished the majority of the cases which came under our observation in the Royal Infirmary; but numerous cases were also admitted from all quarters within fifty miles around Edinburgh, and more especially from the lines of railway at the time in the course of formation in the neighbourhood.

The epidemic presented three types of fever: the short or relapsing fever bore the highest proportion, typhus next, and synochus or continued fever the lowest.

The short fever which relapses, and which constituted the majority of the cases seen in my wards of the Infirmary, in general commenced abruptly. The patient was suddenly seized with a sense of debility, often of sickness, perhaps vomiting, general soreness, chilliness occasionally amounting to rigors; these symptoms, however, soon passing off (often in a few hours), gave rise to heat of surface, most commonly to an intense degree, to a generally very rapid, often hard, and occasionally a full and bounding pulse, varying from 120 to 160; to headach, chiefly frontal, and accompanied with much throbbing of the temples. The whole person was uneasy and restless, and general pains of the limbs were complained of. The tongue was generally covered with a white fur dry in the centre; sometimes it was quite clean, with a brownish-coloured dry stripe down the middle of it, while, in other cases, it was furred and parched throughout. Thirst was generally much complained of, along with tenderness upon pressure at the epigastrium, and feeling of tightness, which the patients themselves attributed to the quantity of water they had drank. To restlessness, sleeplessness was in general superadded, and a very common inquiry of the patients, was something to make them sleep and ease their pains.

The mind was in general tranquil, but, in some few cases, there was a tendency to incoherent talking, especially about the third, fourth, or fifth day, when, not unfrequently, considerable delirium occurred, before the critical evacuation took place. After

a period of longer or shorter duration, generally upon the fifth, or from five to seven days, during which time the patient has been lying in a state much the same as described, he begins to experience a gradual remission of his sufferings. The skin becomes by degrees moister, until it is covered with copious perspiration. This diaphoresis is in general critical; sometimes it is ushered in by a severe rigor, while, at other times, it comes on more suddenly. It continues for a time most abundant, bedewing the face and hands with large drops of moisture, and saturating the bed-clothes, after which the patient feels quite relieved. The most common duration of this diaphoretic crisis is from three to six hours, sometimes much longer. I have seen it in some cases continue for upwards of forty-eight hours. Another manner in which this disease terminates, is, after an imperfect attempt at diaphoresis, the febrile symptoms become shortly renewed, and it passes on to synochus or typhus. I have elsewhere remarks to make upon the eruptions which have occurred during this epidemic. I may here mention that petechial spots, often with central puncta, were frequent during this short disease, but were not noticed in the relapses which followed. The pulse, on the occurrence of this critical diaphoresis, undergoes a remarkable reduction—from 140 to 160; it sometimes falls in a few hours to 45; in two cases it fell as low as 40, and 50 is a very common number. Along with this reduction of the pulse, the heat of skin vanishes, and it is soon left in a natural state. The critical evacuation has generally been by perspiration; but we have had cases in which it proved critical by epistaxis, by diuresis, by diarrhœa, and by menorrhagia.

This evacuation in general leaves the patient much exhausted, sometimes to such a dangerous degree as to prove fatal. After recovering from this evacuation, however, he feels himself perfectly well; his appetite returns, his skin and pulse are natural, and he is soon able to get out of bed and go about the ward. This state of matters rarely continues for any length of time; in one or two instances, a gradual recovery of strength and perfect convalescence followed; but, in the great bulk of the cases, after a longer or shorter period of good health, a slight rigor or chilliness, followed by loss of appetite, heat of skin, quick pulse, and general soreness, denoted a relapse of the disease. This relapse, in the majority of the cases, occurred on the fourteenth day from the first seizure, and terminated in a similar way generally upon the third day from the commencement of the relapse. A second and even third relapse occurred in a small number of instances.

Considerable difference of opinion seems to exist about the nature of this disease. It is clearly distinct from typhus. It is equally distinct from continued fever. But is it synocha? It may be said to

answer strikingly to the description given of synocha or ardent fever by Dr Cullen ; and a disease obviously very similar to that I have just detailed has been described by Dr Christison,* drawn, as he states, from the epidemic of 1817–20, and 1826–29, as it prevailed in Edinburgh. A modification of, if not the same disease, with more or less biliary or gastro-biliary derangement, took place in the year 1843–44, the nature of which gave rise at the time to much discussion.

It appears to me, that too little importance has been assigned to the relapses in this disease ; they have been put down as accidental, or as only casual occurrences. But it ought to be borne in mind that these relapses occur in almost every case of the disease (the non-occurrence being the exception), and with a regularity, too, equal to that of any form of intermittent. It must be remembered, also, that although the early stage of the disease answers the description of Cullen's synocha (and that such a disease exists I cannot doubt), yet that it essentially consists of an attack ushered in by chilliness and rigors, followed by ardent fever, and terminated by copious diaphoresis, that this state of matters returns, like an intermittent, after a similar fashion, on a certain regular day, and is liable to recur repeatedly, but always following the same course of chills, hot and sweating stages, the constitution being able to throw off the disease after a time. It seems to me, therefore, that a disease with symptoms of this kind cannot be put down as synocha, nor as yellow fever, nor as the suette or sweating fever of Normandy; it possesses characters distinct from them all, and these lie in the regular periodicity of its intermissions. It nevertheless seems doubtful whether it can be regarded as a new disease. I think that there can be no doubt, in looking into the history of Irish epidemics, that a disease of a precisely similar description occurred there so early as 1731.

In 1731, it appears, by Drs Barker and Cheyne's account, that the epidemic of that year was of the same character as that of 1741.

In 1741, says Rutty, "there was frequently a fever without malignity of six or seven days' duration, terminating in a critical sweat, in which the patients were subject to a relapse, even to a third or fourth time, and yet recovered." "I was assured of 70 of the poorer sort at the same time in this fever, abandoned to the use of whey and God's good providence, who all recovered."—P. 75.

The epidemic of 1800–1 generally terminated on the fifth or seventh day by perspiration, and was then very liable to recur.

In 1817–18, according to Drs Barker and Cheyne, the epidemic was the same as that of 1801, and the proportion which the

* Tweedie's Practical Medicine, Vol. i. p. 128.

one set of cases bore to the other may be drawn from the records of the Royal Hibernian Military School in the Phœnix Park. In a population of 726 persons, 21 had short or inflammatory fever, 14 had typhus, and 34 simple continued fever.

Dr O'Brien has given a record of the epidemic fever of 1826–27. He says it presented two forms of fever, which he distinguishes into that of the old and new constitution. The old was the ordinary typhus, proceeding to the 11th, 14th, 17th, or 21st days. The second variety, or new constitution, which was predominant, was distinguished chiefly by short periods, terminating in three, five, seven, or nine days,—the five-day period being the most common, generally by copious sweating. In this comparatively mild form of disease, the most perplexing circumstance was the frequency of relapses.*

This form of fever seems to constitute a new link in the Cullenian division. It has a certain amount of the intermittent and a certain amount of the continued fever in its composition, and yet it neither can be called ague, on the one hand, nor synocha, on the other. It has been well named, from its most prominent characters, *short or relapsing fever.*

Synochus and typhus may now be considered as endemial to these countries, and most probably to most large towns on the continent of Europe. In Great Britain the endemic constitution seems to have sprung up since the commencement of the present century. The first notice which I can find in reference to the introduction of fever into Edinburgh and Leith is recorded by Dr Hamilton in his work on purgative medicines. In the summer of 1779, a typhous fever of more malignity than usual appeared in Edinburgh. It originated in the hospital appropriated to the sick prisoners of war who were then confined in the Castle. Every precaution was used, without effect, to prevent the spread of the contagion. Many of the soldiers of the garrison and inhabitants were seized with it.

In the summer of 1781, a fleet of merchantmen arrived in Leith Roads from Jamaica. The passage had been tedious, the crews were sickly, and they had been for some time on short allowance of provisions. Nevertheless they had been obliged, by the circumstances of war, to avoid the British channel, and to come round by the north of Scotland. From the beginning of July to the 9th day of August, 126 men were sent on shore with fever from one of H. M. ships of the convoy. Of these, 23 died; and of 40 men who were landed from the Egmont, another of the convoy, 8 died. Such of the sick as could not be accommodated in a temporary hospital were quartered in Leith, two, three, or

* Report of the House of Recovery and Fever Hospital of Dublin for the year ending 1827. By Dr John O'Brien.

four being billeted in one house. Many of the inhabitants were seized with a fever of the same kind as that which affected the seamen, and it prevailed for some time afterwards. This fever was similar to its predecessor.

Typhus fever seems again to have prevailed in 1798-9, and again in 1806–7.

Dr Orr of Glasgow has drawn attention to the recent and regular recurrence of fever in an epidemic form in Glasgow every ten years; and it is almost demonstrated that his estimate of their regularity of return is not far from the truth. It is to be lamented, that during the latter part of the last century and the beginning of the present, so little was written on the subject of epidemic visitations of fever. Indeed, we have reason to believe, that epidemics passed over without any record being left of their extent or character. So far, however, as I have been able to obtain information, this periodicity in the recurrence of epidemic fever seems to be maintained elsewhere as in Glasgow. The following table shows the years in which we have records of its occurring in

Ireland,	Edinburgh,	and Glasgow.
YEARS.	YEARS.	YEARS.
1708, 1709	1778, 79	1817, 18, 19
1718, 19, 20	1781, 82	1826, 27, 28
1728, 29, 30	1798	1836, 37, 38
1739, 40, 41	1806, 1807	1846, 47, 48*
1762	1816, 17	
1798, 99	1826, 27, 28	
1803	1836, 37	
1807, 1808	1843, 44	
1817, 18	1846, 47, 48	
1826, 27, 28		
1836, 37, 38		
1846, 47		

During more than half a century, therefore, it seems to have exhibited the tendency to recur periodically; and the history of these often favour the idea of its having been a disease imported into this country.

There can be no doubt, however, that since the beginning of this century, those who have been conversant with the diseases of the masses, have observed at all times more or less typhus or continued fever amongst them; and the records of the Infirmary show that there have been at all seasons more or less of this disease in the wards of this charity. It was customary for a time to attribute the increase of fever, which usually occurred during the

* The interval between the epidemics may be said to be from five to eight years, which gives a period of from three to four years for an epidemic to exhaust itself.

autumn and winter months, to importation with the Irish reapers;* but, in truth, the same disease was in existence before the Irish came over, and was probably at the time increased by having individuals exposed to its contagious influence, with their constitutions in a state which predisposed them to take it, or that the particular season of the year tended to its increase. In short, it is obvious that these types of fever, whether engendered or imported, had become endemic from that period in most of the larger towns in these islands. They linger in certain filthy ill-ventilated localities; and when an epidemic constitution is engendered, the cases do not occur scattered or unconnected with one another, but beginning in these haunts, increasing by slow degrees, from one member of a family to another, from family to family, from house to house, from stair to stair, according to proximity or intercourse, until the population is widely and promiscuously affected.

Epidemic diseases introduced from other quarters most commonly present certain peculiarities which appertain to the fevers of the country from which they are imported; and it appears to me, from evidence which I shall presently adduce, that this peculiarity was a prominent feature in the epidemic disease of which we are about to speak.

The amount of fever which constantly exists in the town of Edinburgh and suburbs will be best shown from the admissions into the Royal Infirmary during a period not marked by any epidemic, or any unusual prevalence of the disease.

Thus, the admissions into the Royal Infirmary of fever patients during the respective months of the years 1844, 45, 46, 47, were as follows :—

1844-45.		1845-46.		1846-47.	
1844	No.	1845	No.	1846	No.
November	89	November	79	November	61
December	55	December	69	December	74
1845		1846		1847	
January	51	January	64	January	66
February	49	February	35	February	83
March	32	March	47	March	175
April	23	April	29	April	274
May	25	May	33	May	235
June	35	June	29	June	752
July	35	July	26	July	751
August	19	August	49	August	679
September	9	September	28	September	228

From the above table, it is obvious that, during the winter

* It has been long remarked, that in those towns which have much intercourse with Ireland, as Liverpool, Manchester, Bristol, Glasgow, fever predominates more than in others not similarly circumstanced; and Dr Lombard argued, that it was imported by Irish labourers who go over in great numbers to reap the harvest.

months of 1846-47, no increase of febrile disease more than usual occurred in Edinburgh.

The failure in the potato crop of the summer 1846, although widely and severely felt, did not give rise to so much suffering in Edinburgh and the surrounding country as it did elsewhere. The wages of the working classes were remarkably high, employment abundant, which enabled them by other means, and by using articles of food not quite so wholesome or nutritious as usual, to avoid want and disease, and to subsist with their high wages and abundant employment in a state of health nearly equal to that which they were enabled to enjoy when provisions were abundant, but employment scarcer, and wages less.

Although from the want of this wholesome farinaceous root, scurvy and other diseases were abundantly engendered, yet fever seems to have been averted; and it was not till the month of February, or rather the beginning of March 1847, that a decided increase in the admissions to the Infirmary took place, as well as a change in the general character of the fever itself. The endemic fever, as I have already stated, is synochus and typhus; and such was the character of the disease which prevailed up till February 1847,* at which time the epidemic may be said to have commenced. In this month, cases of relapsing fever became common. This disease, we shall find, was, during the autumn and winter months of 1846–47, prevailing extensively in Ireland. In Glasgow it began, according to Dr Orr, a month or two sooner than in Edinburgh, and all presented the same characters. Was the disease an imported one, then, or did it arise from the same causes in different places? To come to a proper understanding of this question, it is necessary very shortly to trace the origin and progress of the epidemic in Ireland.

I have already mentioned the endemic febrile constitution which has been engendered in this country since the commencement of the present century. This endemic constitution seems to have existed for a long series of years, and to a much greater degree in Ireland than in this country or England. From some statistical data, published by Mr Wylde, of the mortality of the province of Leinster for ten years, ending in 1841, a period not marked by any remarkable epidemic visitation, the deaths from fever alone amounted to one-tenth of the whole mortality.† In

* I believe that a few isolated cases of relapsing fever were seen in the hospital towards the end of the year 1846, but they were so few as hardly to be worthy of mention.

† The continuation of fever would seem to have been noted in the beginning of the last century, as we find Rogers asserting of the different epidemics of 1708–9, 1718–19, 1728–29, that they were not successions of different fevers, but the same disease which had been never extinguished, but which circumstances had called into operation, according as alterations of the seasons or privations occurred?"

Dublin, the average mortality from fever is one twenty-fifth of the whole mortality. We have no statistical data to which we can refer in Edinburgh; but in London, the average mortality from fever is only half what it is in Dublin, viz. one-fiftieth to the whole mortality. In Edinburgh, I should think that the average mortality from fever, as compared to the mortality generally, must be higher than that of London. The immense number of cases that are sent from all quarters to Edinburgh for hospital relief, and many of them of the worst kind, must of consequence materially increase the number of deaths from this cause; but if we take the large towns of Scotland generally, I am satisfied that the average of these will not exceed that of London. The failure of the potato crop of the summer 1846 was more severely felt by the people in Ireland than in any other country in which this root became blighted. The food of by far the greater number of its inhabitants in ordinary years is almost entirely composed of potatoes. The sudden and unexpected failure of a crop which promised so well, completely paralyzed them in making provision for a supply of food in any other way. In spite of every effort that was made by the government, and the benevolent and affluent of the country itself, the depraved quality and deficient supply of food soon began to tell upon their constitutions. Masses of them became in this way predisposed for receiving the contagion of a disease so extensively endemial amongst them; and when we consider the immense number of poor in that country, the filthy habits of these, both in their persons and dwellings; the numbers that gather together in one little dirty cabin or hut; the custom of numbers flocking into the sick rooms and sitting by the patients; and the still more obnoxious ceremony of the "wake," or sitting for hours or whole nights in the same room with the dead body,—it need be no cause of wonder that the disease spread with a rapidity almost unparalleled. Scenes of misery were recorded by the daily press of the most harrowing description. Whole families were swept away, and, in some districts, so great was the mortality, that it was difficult to get them buried. In addition to the other assistance which the government afforded, they supplied the means of emigration to other countries; but the disease followed them on board the ships; and so universally fatal was fever on board these emigrant vessels, that few escaped the disease, and of those affected, more than a half are said to have perished. While the

And the constant occurrence of fever throughout Ireland is very distinctly stated in a very excellent paper by Drs Cusack and Stokes, on the Mortality of Irish Medical Practitioners. "The medical practitioners of Great Britain," say they, "have only to contend with infectious fever occasionally, and rarely, indeed, in the rural districts. The Irish physician has to combat it in all situations and at all seasons."—Dublin Journal, Vol. iv. 1847. P. 139.

government provided the means for their emigration to distant countries, many resolved at once to turn anything they possessed into money, to enable them to leave the country when disease and death was decimating their numbers. The numerous packets which ply between this country and Ireland, the cheapness of the passage-money, the prospect of employment and good wages, all combined in bringing them over to the nearest ports in immense numbers. Liverpool and Glasgow suffered principally. They began to arrive there early in the winter season,—shortly, indeed, after the effects of the famine began to be felt; and to so great a height did this emigration reach, many of them actually labouring under the disease at the time, that government had at last to interfere and put a medical survey on all the vessels arriving from Ireland with passengers, and a quarantine, if fever was found on board. This had the effect of diminishing the numbers of those coming over, and also of making the owners and officers of the packets more particular in their examination of those presenting themselves as passengers. I cannot but think that, had such means been adopted earlier, we would have had less of the disease in this country. Dr Orr allows "that the Irish paupers who, during the past year, have flocked in such numbers to Edinburgh and Glasgow, have been the principal victims of the disease, and that it is owing to their great influx and destitution that the epidemic attained such a degree of prevalence."—P. 373–4.

The mischief, however had been already effected. These poor people, wretchedly clothed, exposed to cold and wet as deck passengers, many of them starving, and not a few of them actually labouring under disease, were ushered into our densely-populated towns, there to seek the cheapest and most wretched lodging-houses or places of shelter. Fever thus became introduced into these abodes, and after its introduction it was kept up by a system as loathsome as culpable, until the authorities, in many instances, interfered for its removal. It was impossible to put it down, however; as, whenever they had their houses whitewashed and cleansed and their bed-clothes washed at the public expense, they resumed the same system. I had several opportunities of visiting these lodging-houses occupied by the poor Irish. They in general consist of large-sized rooms, in dirty and badly-aired localities (generally the poorest in the town), in which beds are arranged on the floor as thickly as they could be placed. Here all sexes and ages occupied; and when one took fever and was removed to the hospital, no cleansing took place, but the next applicant was admitted into the bed just vacated by the fever patient. In this way the disease was spread, and, as may be easily imagined, every bed in a lodging-house of this kind soon became a focus of contagion. One little wretched smoky cabin which I had

occasion to visit, furnished to the Infirmary five cases out of one bed in the course of three weeks.

Dr Orr has not mentioned in his valuable paper on the epidemic as it appeared in Glasgow, whether the first patients offering themselves for admission into the hospitals there, were Irish. It would have been interesting to have been furnished with this fact. In Edinburgh almost every case admitted into the Infirmary at the beginning of the epidemic was from Ireland; and for nearly three months they continued so. A record was taken, on the 10th of June 1847, of the number of fever cases in the Infirmary, and the countries to which they belonged, the result of which was,—

Fever Cases, 473. Scotch, 87. Irish, 379. English, 7.

And again, on the 26th of July 1847, the record was as follows:

	English.	Scotch.	Irish.	Foreigners.	Total.
Fever,.....	10	186	410	2	608
Medical,.....	3	54	39	0	96
Surgical,.....	2	72	23	0	97
Total,.....	15	312	472	2	801

Dr Orr has made a very similar remark of the patients treated in Glasgow, the average throughout the whole epidemic being 60 per cent. of Irish to 40 of Scotch.—Page 376.

I shall shortly recapitulate the circumstances which I think lead to the belief that the disease which has lately devastated our city had its origin in Ireland, and was imported into this country by means of Irish immigration.

Firstly.—The history of the fever shows its having been long known in Ireland.

Secondly.—Its history proves that it was prevailing extensively in Ireland before it was seen in this country.

Thirdly.—Many early Irish emigrants to this country were known to be affected with fever.

Fourthly.—The towns to which they had easiest access, and where they arrived in greatest numbers, were those in which it first began to prevail.

Fifthly.—The parts of those towns in which the disease first made its appearance were known to be chiefly occupied by Irish.

Sixthly.—The first cases which occurred in hospital practice were all Irish.

Seventhly.—The Irish constituted more than a majority of the patients affected with fever throughout the whole epidemic.

In Glasgow they amounted to 60 per cent.

In Edinburgh they amounted to 73 per cent.

Eighthly.—In Edinburgh, the first cases either came direct

from Ireland into the Infirmary, or from lodging-houses solely inhabited by Irish who had recently came over.

And, *Ninthly.*—The evidence of this must have been sufficiently convincing to those whom the government appointed to inquire into the state of this immigration into this country, when a medical inspection was established upon vessels carrying passengers between the Irish ports and this country, and a quarantine if fever was found on board.

Dr Stark has adduced another argument in favour of its origin being imported contagion, in the fact, that the great majority seized with the disease were males. Of 1517 deaths from fever during 1847, 924 were males, and 593 females. If the disease had arisen spontaneously in this country, females bearing the highest proportion to the population, the result would have been otherwise. We should have had more, or at least an equal number of females; but the males bear the highest proportion, since they form the majority of immigrants.

We have not space to do more than allude to another question which forces itself into notice in the history of this epidemic, viz. the connection between famine and fever.

That bad or deficient food, along with want of cleanliness and ventilation, can engender disease, and especially fever, is a point which can hardly be disputed. The instances which are on record in which disease, and especially fever, has been thus engendered in ships, hospitals, jails, and camps, and from which circumstance different fevers have taken their distinguishing names, are too numerous to be dwelt on. In many of these instances, opportunities have occurred of watching the gradual progress of famine into disease.

The history of epidemic diseases affords us other examples in which the connexion is distinctly established.

A fever is mentioned by Carlo Galli that occurred and laid waste nearly the whole of Lombardy, towards the end of the sixteenth century. It followed upon a famine, and spread through Tuscany for four years. The famous plague of Milan, mentioned by Tadinus, was produced by thousands of beggars crowding into the city in a state of starvation. To save the population from the annoyance of so many mendicants, the government provided a neighbouring convent for them; and soon the scanty allowance of food and crowded state of the apartments produced such a pestilence or fever, that it was thought proper to allow those who were free from the disease to leave the place. They carried with them, however, the seeds of the disease, and soon whole families in the city and neighbouring villages were affected, and it devastated the place widely.

The well known dreadful epidemic fever of Naples in 1764 is distinctly referable to a similar cause, and is thus ably described

by Sarconé. "The multitudes of miserable beings," says he, "wandering from city to city, presented in every part a spectacle of sorrow and desolation. The inclemency of the weather,—the scarcity and depraved nature of the provisions,—the very idea of insurmountable misery,—the natural filthiness of the wretched people,—the absolute want of means of changing their linen and clothes, which had become excessively filthy, and saturated with an offensive effluvia,—their continual wanderings and fatigue,—all could not fail to alter the state of the blood of these people, and to generate in their constitutions this fatal disorder, which is commonly the consequence of famine and misery." But let us come to look at the Irish epidemics themselves, and the light they throw on this question.

In the years 1739, 40, and 41, a severe epidemic of fever broke out throughout Ireland. It arose after a long continued and most intense frost in the winter of 1739, and a failure of the subsequent crops. It was general throughout the island, but, according to Rutty, especially devastated "the provinces of Munster, Leinster, and Ulster, but was most fatal to the first, where their poor was worse provided for."

In the years 1798, 1799, and 1800, another epidemic of fever, even more extensive than formerly, prevailed throughout Ireland. It is stated to have had its origin in the wretchedness and poverty into which the poor of the country were thrown in consequence of rebellion and failure of the crops during two successive years. "The state of the poor in the principal towns in Ireland in the years 1799, 1800, 1801, and 1802," says Drs Cheyne and Barker, "was wretched in the extreme."

Another epidemic from failure in the crops arose in 1817, 1818, and 1819, and devastated the country widely; and the still more recent epidemic of 1846–47 has added another and recent instance to those already recorded.

Drs Cheyne and Barker, writing of the epidemic of 1800, concurs in a statement which was used at the time, that "the immediate effects of want of food are weakness of body and depression of mind, causes which contribute, in an eminent degree, to the production and extension of contagious fever." In addition to this, moreover, "the poor are under the necessity of pawning their clothes for daily sustenance, which occasions increase of filth, exposure to cold, and the crowding of several members of a family in the same bed."

Indeed, the point is now so generally admitted, that, in the epidemic of 1817, 1818, and 1819, fever was anticipated in several localities as the uniform result of famine.

Again, in 1846–47, preparations were early made for the recurrence of fever, as a result of the failure of the potato crops.

The argument which has been used by Dr Graves, that, although famine is general over the island, fever only prevails epidemically over a small portion of it, is readily explained, on the gound that these parts are the very ones where masses of filthy, hungry, and half-naked wretches congregate, and who are especially liable to have fever lingering amongst them in times of plenty, far less in times of scarcity.

The idea which I have formed of the connection between fever and famine in Ireland, is somewhat different, and may be shortly stated as follows. I have already quoted from various sources the amount of fever which is endemic to Ireland, which seems never to leave certain districts of it. Indeed this need be no cause of wonder, if we for a moment consider the wretched condition of the poorer classes, their extreme poverty, their filthy habits, their wretched dwellings, and their peculiar customs. On the occasion of a failure of the most common articles of food, these poor creatures begin to suffer immediately. They have not the means to buy it when it gets high; they must therefore pawn their rags to get nourishment. In this half-clothed, half-starved condition, they become highly susceptible to the influence of fever; lingering, as it does, constantly amongst them, it thus gains new force and vigour. More are beginning to suffer day after day from hunger, and thus fresh victims are prepared for a disorder which soon assumes an epidemic form, in consequence of its finding many other victims for its malignant influence. In this way I am inclined to ascribe the action of famine more to the kindling of a spark which is constantly smouldering amongst them, than to the lighting up of a new one; at least this seems to be the explanation of the epidemics during the present century.

I have digressed a little from the regular course of my narrative, for the purpose of considering whether or not the disease we have been considering was an imported one, and arose from famine.

As the number of applicants with fever at the Royal Infirmary increased, the managers at once determined to admit as many as they could procure accommodation for; and I have no doubt that, to the promptitude with which they acted for the public welfare, is to be attributed a considerable reduction in the number and the mortality of those who ultimately became affected with the disease. They therefore, when the fever wards in the Infirmary and Fever Hospital became full, opened nine other places for their accommodation, including five tents in the green; and latterly the garrets of the Infirmary itself were cleared out for convalescents. In this manner, for a time, nearly all the cases were admitted as soon as application was made; and by this means much spreading of contagion was avoided, and many poor creatures brought from a distance were at once accommodated, to whom delay in admission even, far less a removal back to their wretched

homes, would have proved fatal.* Many of those admitted from a distance died within few hours; and numbers were saved by placing them in a warm bed, surrounding them with artificial heat, and administering stimulants freely and repeatedly, until reaction was established.

The ordinary number of patients which the Infirmary accommodates, amounts to between 200 and 300; some idea, therefore, may be drawn of the amount of extra accommodation which had to be provided, when, on the 26th June 1847, 803 patients were in the house and adjoining grounds at one time, 628 of which were fever cases.

It becomes a matter of considerable interest and importance to ascertain as nearly as possible the proportion which fever cases bore to the population generally, as well as the mortality from fever to that population.

The records of the Infirmary itself cannot be expected to yield even approximative results, for, in addition to the cases sent there both from town and country, many are treated at home from the dispensaries by private practitioners, &c.; and in town, the parishes had surgeons of their own who attended the poor at their houses; and latterly, one of the parishes had a fever hospital opened for its own poor. It will be obvious, therefore, that unless we could come at the result of all these combined, we cannot arrive at a proper understanding of the numbers affected with fever.

The above remarks will appear more distinctly when I compare the mortality which the Infirmary records show, and add to it that of the City Parochial Hospitals, and those of the Leith Fever Hospital and dispensary, with that given by Dr Stark from the records of the burials.† It stands in round numbers thus:—Total fever mortality from January 1847 to July 1848, including Leith, 2503 (Stark). Total fever mortality of Edinburgh Infirmary is 1201; of Leith Fever Hospital, 37; and City Board Parochial Hospitals, 112; total, 1350.

The above results show a most important fact,—that nearly as many deaths from fever occurred out of the hospitals as within them. This fact appears the more startling when we call to recollection the great exertions that were made to accommodate all those applying for admission into the different hospitals, with the very view of preventing many of them passing through the disease at their own houses. It is so far explained, however, when we consider the rapid increase which took place in the number of the cases within a very short space of time, and the limited amount

* It is a well established fact that fever patients stand removal to any distance very ill. From an account kept, which shows this point in the epidemic of 1843 (Infirmary Report), removal from Leith, a distance of 2½ miles, increased the mortality by a half.

† Dr Stark has explained to me that, if there is any error in his fever mortality, it must be on the side of non-enumeration,—some cases of fever being possibly returned under the head of "causes of death not ascertained."

of hospital accommodation; for after the Royal Infirmary was quite full, many hundred cases applied for accommodation that could not be admitted. Although, therefore, in all epidemics, the same must take place to a certain extent, yet it is very questionable if the proportion would be so high. As it is, however, the above calculations show that as many cases of fever in the town were treated out of the hospitals as in them.

Many of the cases of fever admitted into the Infirmary came from the country. The proportion of cases of fever from the town and country, as deduced from the hospital report of 1847, gives the following results of 4084 cases. 2957 came from the town, and 1127 came from the country; being a proportion of 72·41 per cent. from town, and of 27·59 per cent. from country.

Again, a great proportion of the cases of fever were Irish who had only a temporary residence here—whose presence swell largely the fever records—but whose numbers ought to be excluded in drawing the proportions which an epidemic of fever bears to the population. The average of two trials made in the Infirmary on the 10th June 1847, and 26th July 1847, of the relative proportions of cases from the different countries gives the following result:

	Irish.	Scotch.	English.	Foreigners.
Fever cases,	394	136	8	1
Average proportions,	72·96	25·18	1·48	0·20

Now, if we take Dr Stark's mortality, which must be very near the truth, and apply the above calculations to it, results singularly curious, and almost conclusive, come out as to the proportion of the population of Edinburgh and Leith that were seized with and died of epidemic fever. Thus when the proportion of town and country patients, as deduced from the Infirmary records of 1847, are applied to the total fever mortality given by Dr Stark, the results would be as follows:—

Of 2503 deaths, { 1814 would be from town.
689 ... country.

If the Infirmary average of the countries which yielded the patients be correct—

Of 2803, { 1827 would be Irish.
630 ... Scotch.
38 ... English.

But if we take the proportion from the different countries which the town average yields, it is as follows:—

Of 1810, { 1325 would be Irish.
457 ... Scotch.
28 ... English.

And if, of the town mortality, the half of the Irish are excluded, as temporary lodgers, and as not coming under the head of resident population, the numbers will be of deaths from fever in the resident population of the towns of Edinburgh and Leith—

Total, 1148, being composed of { 663 Irish. / 457 Scotch. / 28 English.

If the whole fever mortality be reckoned at 1814, it gives 1 death for every 93 of the population. But if the deductions are made which I have suggested above, of the half of the Irish from the town mortality, it gives 1148, being 1 death for each 138 of the resident population.

The difference, too, becomes greater as to the number of patients affected with fever, as calculated from data, excluding the proportion of country population and the half of the Irish town population. Thus: the number of cases of fever which the whole mortality of Edinburgh and Leith gives, including the neighbouring country, and without any deduction—

Total mortality, 2503.

Total cases of fever, calculated at 13* per cent., 19,254.

Proportion, 1 case of fever in every 9 of the population.

But if we exclude the proportion of country mortality, and half the Irish town mortality, the results will, in my opinion, come nearer the truth. They would stand as follows:—

Total mortality, under deductions, 1148.

Number of fever cases, calculated at 13 per cent., 8830.

Proportion to population, 1 in every 19.

The following exhibits the above results drawn out in a tabular form:—

Proportion of Fever deaths to Population.

	Numbers.		
From town mortality, deducting half the Irish,	1148	... 1 in every	138
..... alone, without deduction,	1814	... 1 ...	93
From total mortality of town and neighbouring country, . . .	2503	... 1 ...	67·50

Proportion of Fever Cases to Population.

From total mortality of town and neighbourhood,	19,254	... 1 in every	9
... mortality of town alone, under deduction of half the Irish, . . .	8830	... 1 ...	19

On the opposite page is a table drawn from the Infirmary records of the numbers that were admitted, that died, and that remained in the house at the end of each week, during the prevalence of the epidemic; and it exhibits in a singularly beautiful manner the gradual increase of the disease until it reached a certain point, and the as gradual decline of it,—a circumstance which Dr Christison and others have remarked to be constant with fever visitations in an epidemic form.

* I have fixed upon 13 per cent. as the average mortality for the following reasons:—First, it is near the average mortality of males and females in the Infirmary; secondly, it is about the average of Leith Hospital, which I consider to be a good criterion to go by, as the cases were sent in early, and from no distance; and lastly, it is near the mortality which Dr Stark has fixed upon for his tables.

Dates.	Admission.	Deaths.	Remaining in Hospital.
Sept. 30, 1846	...	...	55
Oct. 5, ...	12	1	52
... 12, ...	18	...	48
... 19, ...	12	2	58
... 26, ...	13	4	49
Nov. 2, ...	20	2	61
... 9, ...	13	6	62
... 16, ...	13	4	50
... 23, ...	19	2	58
... 30, ...	9	3	58
Dec. 7, ...	17	1	56
... 14, ...	23	3	60
... 21, ...	23	5	62
... 28, ...	20	2	58
Jan. 4, 1847	15	...	62
... 11, ...	20	...	67
... 18, ...	14	7	61
... 25, ...	17	1	60
Feb. 1, ...	17	2	63
... 8, ...	22	4	70
... 15, ...	17	1	73
... 22, ...	13	1	74
March 1, ...	45	2	73
... 8, ...	45	4	98
... 15, ...	41	1	114
... 22, ...	50	5	121
... 29, ...	51	6	134
April 5, ...	52	6	144
... 12, ...	54	7	146
... 19, ...	64	8	174
... 26, ...	82	14	206
May 3, ...	76	10	230
... 10, ...	84	15	246
... 17, ...	102	14	279
... 24, ...	137	16	339
... 31, ...	131	15	383
June 7, ...	141	22	435
... 14, ...	108	21	508
... 21, ...	181	26	569
... 28, ...	201	30	602
July 5, ...	161	24	622
... 12, ...	159	33	628
... 19, ...	174	25	607
... 26, ...	182	22	597
Aug. 2, ...	163	20	598
... 9, ...	150	20	593
... 16, ...	...	...	556
... 23, ...	...	...	537
... 30, ...	...	...	539
Sept. 4, ...	144	12	542

Dates.	Admission.	Deaths.	Remaining in Hospital.
Sept. 11, 1847	167	10	546
... 18, ...	140	19	535
... 25, ...	...	...	527
Oct. 2, ...	151	27	512
... 9, ...	217	18	590
... 16, ...	125	23	577
.. 23, ...	138	19	563
... 30, ..	154	16	556
Nov. 6, ...	167	18	565
... 13, ...	150	23	547
... 20, ...	153	28	532
... 27, ...	133	32	527
Dec. 4, ...	136	52	506
... 11, ...	113	45	476
... 18, ...	132	35	476
... 25, ...	120	19	451
Jan. 1, 1848	99	18	444
... 8, ...	144	12	473
... 15, ...	144	15	475
.. 22, ...	141	21	461
... 29, ...	127	15	486
Feb. 5, ...	108	22	479
... 12, ...	98	26	410
... 19, ...	104	21	399
... 26, ...	112	19	396
March 4, ...	110	12	396
... 11, ...	111	27	394
... 18, ...	93	21	357
... 25, ...	88	14	355
April 1, ...	84	12	333
... 8, ...	81	6	306
... 15, ...	81	8	308
... 22, ...	58	13	278
... 29, ...	74	11	263
May 6, ...	101	9	294
... 13, ...	58	15	249
... 20, ...	65	5	241
... 27, ...	50	9	224
June 3, ...	41	8	207
... 10, ...	49	13	168
... 17, ...	41	5	159
... 24, ...	34	3	153
July 1, ...	40	6	141
... 8, ...	39	7	137
... 15, ...	45	6	137
... 22, ...	26	6	119
... 29, ...	43	5	118
Aug. 5, ...	34	2	125
... 12, ...	24	2	116

The records of the epidemic in Leith may very properly be adduced in drawing an account of the numbers affected with the disease in Edinburgh. In Leith the disease was fully two months later of showing itself than in Edinburgh. A decided increase of fever took place towards the end of May or beginning of June. This may be accounted for in the same manner as we have the difference between Glasgow and Edinburgh, viz., that the Irish immigration first took place into Glasgow; when it became full of them they came direct through to Edinburgh; and when the lodging-houses there also became full, they went to Leith; and I have no doubt that, had we the records of other places whither the Irish went, and in which it appeared, we should find it appearing at an earlier or later period than Edinburgh, according as they were nearer or more distant from the sea ports in communication with Ireland. In Leith, too, the early cases were chiefly Irish, and the disease was most remarkably confined to the closes, courts, and alleys of one street, which is chiefly occupied by the poorest of the town, and where the majority of the Irish live. The Dispensary records show the gradual increase and decline which took place in the epidemic. I shall quote them from April 1847 to July 1848.

Fever cases applying at Leith Dispensary.

1847.	No.	1847.	No.	1848.	No.
April .	3	October .	66	March .	36
May .	5	November	51	April .	54
June .	21	December	43	May .	14
July .	23	1848.		June .	44
August .	45	January .	29	July .	22
September	71	February .	31		

The total number of cases which were affected with fever in Leith up to the present date may be said in round numbers to be nearly 1000. The records of the Dispensary show a total of 550 cases. There were treated in the Fever Hospital 266,* 150 of which were not previously entered in the Dispensary records, making a total of 700; but many poor and working people were treated at home by private practitioners, as well as those that suffered in the better ranks, must, I think, bring up the number affected to about 1000.

Statistics of Leith Fever Hospital, from its opening, 29th September 1847, till its close, 14th February 1848.

	Males.		Females.		Total.
Admitted,.....	132	...	134	...	266
Dismissed Cured,.....	114	...	115	...	229
Died,.....	16	...	18	...	34
Sent to Infirmary,.....	2	...	1	...	3

* Many of those sent to the Leith Hospital had been previously registered as Dispensary patients. From a comparison which I have made of the books, nearly a half may be said to have been registered in the Dispensary books, and afterwards sent to the Hospital.

Rate of mortality in males,..... 12 12
,, ,, females, ... 13.43
Total rate of mortality,..... 12.78*

The parts of the Infirmary which were placed under my superintendence was the extra accommodation which had been prepared for the emergency. These consisted—

First, Of a shed marked C.

Second, Of a shed marked E.

Third, Of five tents erected on the green, and in the open ground at the back of the Infirmary.

Fourth, These were displaced as the season advanced by a long wooden shed marked F, divided into three compartments.

In these receptacles, during the course of the epidemic, 1541 cases were admitted, of which—

639 were cases of short or relapsing fever.
539 ... ... typhus.
145 ... ... synochus.
218 ... of other acute diseases, or of cases whose names are entered but no disease attached.

Before entering upon the more minute statistical details of fever, I may state that much has been omitted in recording the different cases which would have been valuable. This arose, not from neglect on the part of the young gentlemen who acted as clerks, but from the impossibility to undertake the duties of superintending the numerous patients, far less that of keeping a due record of their cases. The number of young gentlemen who were willing to act as clerks in the fever wards was very limited; and to the three gentlemen who acted with me, Drs Aitken, Chalmers, and Rennie, I cannot bestow too high a meed of praise for the diligent discharge of their arduous duties. The want of sufficiently minute records is not their fault, but the fault of the immense mass of cases admitted, and the few individuals to look after them. The statistical records of the different places under my care will be found as follows.

Tents.—The tents were five in number, erected in the open space at the back of the Infirmary, and exposed to free currents of air. Flooring boards, one to two inches in thickness, were laid to a sufficient extent upon the grass, and over them the tent was erected. Three of these were ordinary round tents; one was an hospital military tent; while the other was a large lofty one, which contained 14 beds, the others not accommodating more than 9 or 10 each.

The first patient was admitted on the 17th of May 1847, and

* The total mortality of the Leith Hospital is less than that of Edinburgh; and this difference must arise from the short distance they have to be brought to the Hospital, and their having been sent much earlier in the disease.

the last on the 22d September. The last tent was taken down the week following.

Number of patients treated in tents, 312; total mortality, 17; being 5.36 per cent.

Of this number, 114 were cases of typhus, of which 14 died, being 12.39 per cent., or 1 in every 8 cases (= 1 in 8·0714.)

Of 14 deaths in typhus—

7 died of pure typhus;
1 pneumonia of right side;
1 with head affection (probably softening of brain), ending in hemiplegia;
1 with jaundice and bronchitis combined;
1 had copious diaphoresis;
1 had noma;
1 had mania, pneumonia, and gangrene of lung;
1 had infiltration of pus into anterior chamber of right eye.

Of 100 that recovered—

5 had diarrhœa;
1 had diarrhœa and epistaxis;
2 had bronchitis;
2 had intestinal irritation;
4 had pneumonia of right side;
1 had head affection resulting in mania;
1 had sloughing of pudenda;
1 had copious diaphoresis;
2 had menorrhagia;
1 had dysentery;
1 had erysipelas;
79 had pure typhus, or complicated to such a slight degree that it is not noted.

Of the 14 deaths in typhus—

Those at or under 20 were under treatment 9 days.
... 40 ... 16 days.
... 60 ... 22 days.

Of the 114 cases of typhus, an eruption of a measly or petechial nature was present in them all, with the exception of 4, and *one* of these 4 died. In 7 the exanthem passed into petechiæ.

Of the cases of typhus complicated, 21 in number, and that recovered—

12 were at or under 20
4 ... 30
3 ... 40
2 ... 60

They averaged 37 days' residence in hospital.

Of the typhus cases that had no complication noted, and that recovered, 79 in number—

38 were at or under 20
19 were between 20 and 30
12 ... 30 and 40
5 ... 40 and 50
2 ... 50 and 60
3 whose ages are not mentioned

They averaged 25 days' residence in hospital.

There were 177 cases of relapsing-fever, of which one died.

She died of dysentery, complicating and following after the fever.

Of the cases of this form of fever—

58 were admitted at or under the age of 20
56 . . 40
19 . . 60
1 was admitted above . 60

The ages of the remainder have not been recorded.

In 84, the precise *day* and *nature* of the critieal evacuation has been recorded.

Of *the day*, in 84 cases—

In 47, the crisis oecurred on the 5th day, the relapse on 14th day.
14, ... 6th, ... 14th ...
8, ... 7th, ... 14th ...
6, ... 6th, ... 15th ...
2, ... 6th, ... 18th ...

In 10 more, in which both are mentioned, the erisis took place at irregular intervals above the 5th from crisis and 14th from relapse; the highest being the 9th from erisis and 22d from relapse.

In 28 cases, the period alone of the crisis is preserved.

Of these the erisis occurred in 13 on the 5th day,
13 on the 6th ...
2 on the 7th ...

In the remainder, no periods either of erisis or relapse are recorded. It was observed that at the beginning of the epidemie, the crisis and relapse took place with great regularity; but, as the disease waned, the periods became more irregular.

Of the nature of the crisis. The crisis was often ushered in with rigors, occasionally most violent. The nature of the evacuation was generally a diaphoresis, occasionally epistaxis, and, in a few instances, by both combined.

In 2 by diuresis,
1 by diarrhœa,
2 by menorrhagia.

Sometimes the critical evacuation was ushered in by delirium; in a few instances most violent, and requiring restraint.

Of the 141 cases of relapsing fever, 33 were complicated—
2 had bronchitis;

4 had jaundice;
6 had diarrhœa;
2 had dysentery;
7 passed into typhus;
3 had most obstinate articular pains;
1 laryngitis, requiring tracheotomy;
1 had sordes on teeth;
2 had petechial eruption, and had been suffering from starvation;
3 had severe critical epistaxis, requiring the use of the plug;
2 had severe menorrhagia.

Average period of duration in hospital, 20·5 days.

Tents.—Females.

Comparative duration of cases of typhus and relapsing fever before admission.

Typhus.				Relapsing Fever.			
5	admitted on	2d	day of disease.	2	admitted on	1st	day of disease.
7	...	3d	...	13	...	2d	...
16	...	4th	...	16	...	3d	...
13	...	5th	...	18	...	4th	...
13	...	6th	...	25	...	5th	...
9	...	7th	...	18	...	6th	...
10	...	8th	...	16	...	7th	...
5	...	9th	...	5	...	8th	...
5	...	10th	...	3	...	9th	...
1	...	11th	...	2	...	10th	...
3	...	12th	...	1	...	11th	...
3	...	14th	...	6	...	14th	...
2	...	15th	...				
1	...	16th	...				

It will be observed from the above table, that the admissions in typhus are greatest on the fourth, fifth, and sixth days of the disease, but that it is more gradually extended over the other days than the relapsing disease, in which the greatest number of admissions by far took place early; the intense type of the fever leading the patients to seek assistance and hospital relief sooner. While it dwindles down to one on the eleventh day, we find a decided increase again on the fourteenth day.

Of the 312 cases treated in tents, 14 were cases of *continued fever*. There were no deaths. Average duration of them in hospital, days, 22·5.

There were 2 cases of dysentery without fever, which recovered.

3 of febricula,
1 of variola,
1 of bronchitis,
} all recovered.

Of the deaths from other causes not precisely specified, the one died almost immediately after admission; the other, a child,

came in emaciated and cold, obviously dying from starvation—two deaths; number previously recorded, fifteen; making seventeen in 312 cases, or one in 20¼.

It may be well here to state generally the kind of weather which prevailed during the months in which the tents were used for the accommodation of the fever patients. The weather was exceedingly warm, with much sunshine in the month of May and early part of June; the termination of June, however, and July, proved more variable; unclouded days and fair weather, with genial breezes, being followed by damp and rainy weather, and occasionally a cold cast wind blowing from the sea. Considerably more rain began to fall than usual as autumn advanced, and cold weather set in early—in fact, from the general state of the weather throughout the period that these tents were in use, the weather may be said to have been favourable at first, but exceedingly unfavourable afterwards. I annex a table of the state of the barometer, thermometer, rain-guage, and winds, during the months that the tents were in use, taken from Dr Stark's Meteorological Register, appended to his Mortality Returns for 1847.

Month.	Barometer.				Thermometer.				Rain in Inch	Wind's Genr. Direc.
	Max.	Min.	Mean.	Range.	Max	Min.	Mean.	Range.		
May..	30·28	29·12	29·70	1·16	77	32	50·88	45	4·77	W. E.
June.	30 33	29·10	29·64	1·23	76	38	57·83	38	1·79	W.
July..	30·14	29·48	29·77	0·66	83	42	61·22	41	1·37	W. E.
Aug..	30·18	28·99	29·68	1·19	77	37	58·22	40	0·91	S.W. W.
Sept..	30·19	28·46	29·53	1·73	66	31	50·98	35	1·25	W.

Statistics of Shed F.—Females.—Accommodating from 50 *to* 60 *Patients.*

Length of shed, 192 feet; breadth, 20 feet; height, 10 feet, exclusive of 6 feet 9 inches of run for the roof.

This long building was divided into three compartments, with a separate door to each. It had twelve windows on each side, and twelve ventilators in the floor and roof,—four for each compartment.

The total number of cases treated in this shed in seven months, from October 5, 1847, to April 5, 1848, was 418, of which the disease of

73	was not recorded.	Total deaths, .	39
41	had continued fever.	In relapsing fever,	4
137	relapsing ...	... typhus, ...	32
167	typhus ...	... others, .	3
418			— 39

being 9·33 per cent.

Of typhus cases, there were 167—deaths, 32—being 19·16 per cent., or 1 in every 5·21 cases.

Of the 32 deaths—

4 died of bronchitis complicated with typhus.
1 ... diarrhœa .....
1 ... tracheitis .....
7 ... dysentery .....
9 ... pneumonia .....
3 ... pleuritis .....
1 ... abortion .....
1 ... œdema .....
1 ... apoplexy .....
4 ... pure typhus.

Of the typhus cases that recovered, the complications were numerous, but, owing to a reason which I formerly assigned, such a minute and accurate account of them has not been kept as could have been wished; it will therefore be unnecessary to relate the few which have been recorded.

Of the typhus cases, 167 in number—

Those at or under 20 years of age amounted to			48
.....	40	.....	88
.....	60	.....	22
Cases whose age is not mentioned,		.	9
		Total,	167

Of the 32 deaths—

4 were at or under 20 years of age.
17 ..... 40 ...
3 ..... 60 ...
4 were above 60 ...
4 are not mentioned.

32

Average duration of typhus cases in hospital, 22½ days.

Relapsing Cases of Shed F.

There were 137 cases of relapsing fever in shed F, of which 4 died.

Of the 4 deaths—

1 died from peritonitis on the 6th day of disease.
1 ... purpura ... 20th ...
1 ... erysipelas ... 37th ...
1 ... pneumonia, no date.

Of the complications in those that recovered, no very accurate account has been kept: they were of the usual description. One, however, shall be mentioned in the sequel.

Of the relapsing cases—

Those at or under	20	years of age amounted to	64
.....	40	.....	47
.....	60	.....	11
Those above	60	.....	2
... whose ages have not been recorded,			13
			137

The dates of the crises and relapses are rarely recorded.

Of the above number, 15 cases of crisis took place on the 5th day of disease.

The duration in hospital averaged 18·9 days.

Of the other diseases—

9 had febricula.
25 ... continued fever.
2 ... variola.
1 ... anasarca and disease of heart.
1 ... pneumonia.
1 ... pleurisy.
1 ... dysentery.
1 ... catarrh.

The 3 deaths occurred in the cases of anasarca, dysentery, and pneumonia.

In shed F, the comparative duration of cases before admission were as follows :—

Typhus.				Relapsing Fever.			
4	admitted on	2d	day of disease.	3	admitted on	2d	day of disease.
9	...	3d	...	16	...	3d	...
16	...	4th	...	24	...	4th	...
19	...	5th	...	17	...	5th	...
10	...	6th	...	15	...	6th	...
14	...	7th	...	5	...	7th	...
43	...	8th	...	26	...	8th	...
8	...	9th	...	3	...	9th	...
12	...	10th	...	8	...	10th	...
4	...	11th	...	11	...	14th	...
9	...	14th	...				
5	...	21st	...				

Statistics of Shed C.—Males.

Number of beds, from 25 to 30.
From May 17, 1847, to March 28, 1848.

Total number of cases treated, 412 ; total mortality, 41, being 9·95 per cent.

Typhus Cases, 142 ; deaths, 28. 19·71 per cent.

Of the 28 deaths, 21 died from complication, chiefly inflam-

matory; and 7 from pure low typhus. Average duration in hospital, 22⅓ days.

Relapsing Cases, 146; mortality, 6. 4·11 per cent.

Of the 6 deaths they were all complicated,—1 with dysentery, 1 jaundice, 1 dropsy, 3 pneumonia. Average duration in hospital, 18·2 days.

Cases of continued fever,—febricula, bronchitis, &c. &c., 65; mortality, 7. 10·77 per cent.

Diseases not mentioned, 59.

A complete record of the ages has not been kept.

Shed C.—Males.

Comparative duration of Cases before admission.

Typhus.				Relapsing Fever.			
2	admitted on	2d	day of disease.	3	admitted on	2d	day of disease.
5	...	3d	...	3	...	3d	...
7	...	4th	...	8	...	4th	...
10	...	5th	...	16	...	5th	...
9	...	6th	...	12	...	6th	...
2	...	7th	...	9	...	7th	...
9	...	8th	...	6	...	8th	...
3	...	9th	...	2	...	10th	...
6	...	10th	...	7	...	14th	...
3	...	14th	...	None admitted after 14th day.			
1 on other days up to 21st.							

Statistics of Shed E.—Males.

The number of beds occupied in this shed ranged from 50 to 65. It was opened on June 27, 1847, and continued so till February 28, 1848. During this time it was under the care of three physicians,—Dr Robertson, Dr Coldstream, and myself; and I have drawn out the record of the treatment during the whole period that it was open, namely, eight months.

Length of shed, 168 feet (one compartment); height, 10 feet, with 6 feet 9 of run for roof; width, 19 feet 6 inches.

There was a door at each end; nine windows on one side, the other side being occupied by a blank wall against which the erection was placed; nine ventilators in the floor and roof.

During the above period, 399 cases were treated in this ward, of which 55 died. Total mortality, 13·78 per cent.

There was typhus cases 116; mortality, 37. 31·90 per cent.

Relapsing cases, 179; mortality, 9. 5·02 per cent.

Continued fever, febricula, rubeola, variola, diarrhœa, &c. &c., 104; mortality, 9. 8·65 per cent.

In consequence of circumstances previously explained, as well as the frequent changes both of physicians and clerks, the record of this ward is not so perfect as we could have wished.

The character which the different kinds of fever presented at different periods of the year, was somewhat curious. An idea was prevalent that the short cases presented themselves in larger proportions during the spring and summer months, and that towards winter typhus became most prevalent. The following table shows this belief not to have been well-grounded, as rather a higher proportion of short cases was admitted during the winter months than during the summer. I do not consider, however, that the results which are annexed are at all conclusive on the point, as chance might have thrown a greater number of one kind of cases to one ward at one time more than at another. They are sufficient to show that no great amount of difference could exist.

TABLE showing the relative proportion in which cases of relapsing fever and typhus were admitted into the wards (marked below) of the Royal Infirmary, from the month of May 1847 to March 1848.

1847.	Tents.		Shed E.		Shed F.		Shed C.		Total.	
	Short	Typh.	Short	Typh.	Short	Typh.	Short	Typh.	Short	Typh.
May, - -	13	16	...	...	...	...	7	20	20	36
June, - -	20	25	25	8	...	...	30	27	75	60
July, - -	65	29	25	14	...	...	23	9	113	52
August, -	38	21	...	...	...	...	23	18	61	39
September, -	24	5	6	4	...	...	19	14	49	23
October, -	Tents were given up in September.		20	11	20	23	10	11	50	45
November, -			51	15	27	33	13	5	91	53
December, -			26	14	28	30	6	8	60	52
1848.										
January, -			29	20	31	36	10	6	70	62
February, -			9	6	18	20	7	15	34	41
March, -			...	...	17	17	7	15	24	32
Total, - -	160	96	191	92	141	159	155	148	647	495

Or, if we divide them into seasons, the difference is as follows during the summer, autumn, and winter months.

	Relative Numbers.	
	Short.	Typhus.
Summer, .	208	148
Autumn, .	160	107
Winter, .	221	167

TABLE of average mortality in different wards.

Shed E.—Males.

Typhus cases, - -	116	
Mortality, - -	37 -	31·90

Shed E.—Males.

Relapsing cases,	-	179		
Mortality,	-	9	- 5·02	
Continued fever, febricula, &c.		104		
Mortality, -	-	9	- 8·65	
Total cases, -	-	399		
Total mortality,	-	55	- -	13·78 per cent.

Shed C.—Males.

Typhus cases, -	-	142		
Mortality,	-	28	- 19·71	
Relapsing cases,	-	146		
Mortality, -	-	6	- 4·11	
Continued fever, febricula, &c.,		65		
Mortality, -	-	7	- 10·17	
Total cases, -	-	412		
Total mortality.	-	41	- -	9·95 per cent.

Shed F.—Females.

Typhus cases, -	-	167		
Mortality, -	-	32	- 19·16	
Relapsing cases,	-	137		
Mortality, -	-	4	- 2·92	
Continued fever, febricula, &c.,		41		
Mortality, -	-	3	- 7·31	
Total cases, -	-	418		
Total mortality,	-	39	- -	9·33 per cent.

Tents.—Females.

Typhus cases, -	-	114		
Mortality, -	-	14	- 12·28	
Relapsing cases, -	-	177		
Mortality, -	-	1	- ·56	
Total cases, -	-	317		
Total mortality,	-	17	- -	5·36 per cent.

Upon glancing at the result of these statistical data, we first observe the difference in the mortality of males and females—the average of the males being 12 per cent; that of the females 7 per cent. The next glance demonstrates the advantages to be derived from the treatment of fever cases in open sheds temporarily erected, even in winter weather; for, while the mortality of fever generally throughout the Hospital, between October 1846 and October 1847, was, for males, 15·42 per cent., and females, 10·03 per cent., that of our tents, sheds, and temporary accommodation was, for males, 12 per cent., and females, 7 per cent. To what is this saving of human life to be attributed? It appears to me, if we glance at the nature and localities of these temporary erections, we shall find a solution to the whole question, and that is, in the more perfect state of ventilation in which the patients are placed. The shed or temporary erection which has the highest rate of mortality of those with which I was con-

nected was E. The mortality here was 13·78 per cent., being still, however, even nearly 2 per cent. below the average mortality of the whole house for males.

The explanation of this fact may, I think, be found in the position of this shed, in the large number of cases which were placed in one compartment, and in the want of proper ventilation in some parts of it.

This shed was built against the high enclosing wall at the back of the Infirmary; on each side of it were placed other sheds to the same height. It had a door at each end, ventilation in the roof and floor, and windows only on one side; there were also two stoves at respective distances inside. From this position, little or no thorough ventilation could take place in either way, and that which generally went on was through the open windows and ventilators in the roof. Consequently the patients placed in the corners of the ward, as well as those who were placed against the wall, had not the air so frequently renewed as was necessary. Besides, the great number of cases congregated together in one compartment had the effect of increasing the length of residence in the hospital, as well as exposing the patients to other forms of the disease. Many patients, while I attended this ward, after passing through relapsing fever, took typhus, and were cut off; and many were also lost after typhus with dysentery. The contrast between the cases in this shed and the one next to it, C, at the same time, was often striking, and could not be explained in any other way than in the better position and ventilation of this latter shed. Indeed, of shed C, I have heard the superintendent express his conviction that, in making his night rounds, he generally found this ward the best aired of the whole house.

The construction of this shed, C, is perfectly different from that of any of the others. It was formerly used as a mattress shed, in the drying and making of which plenty of air was necessary. In addition, then, to windows on the one side, a door at the one end, and fire-place at the other, a large portion of the side is sparred, and moveable like window-blinds, and thus calculated to admit a perfect renewal of air throughout the whole ward. There was only one compartment in this ward; but the number of patients was much fewer than in shed E; there was seldom half the number—say from twenty-five to thirty.

The mortality of this shed, then, has only been in males 9·95 per cent., or in round numbers 10 per cent.;—5 per cent. lower than the average of males in the house, and 3 lower than the average of shed E.

But let us go further. Shed F was erected for females. It was a long one (192 feet); but the managers were kind enough, at my suggestion, to direct that it should be divided into three

compartments, separate from each other. There was the most perfect ventilation in this shed. It was erected in an open space of ground, with windows at both sides, and opposite each other, with ventilators in the floor and roof, and a separate door to each compartment. In this way a thorough current of air was established not only from side to side, but from above and below; and in addition, the shape of the roof sloping on each side upwards towards the ventilators, enabled the heated and noxious air to be more completely removed. The result of the treatment here was 9 per cent. of mortality, being 1 per cent. less than that of the females throughout the house. But the most perfect proof of the correctness of the statement I have made,—that the success of the treatment in these out-buildings depended on the more perfect nature of the ventilation,—is afforded by the tents. The result here, it will be observed, is remarkable, being only 5 per cent.; that of the house, by which I compare this, being 10 per cent. Or in other words: by treating the patients in tents during the summer months, a saving of human life is gained to the extent of 5 per cent.

I am aware that a strong feeling existed at the time against these erections; some believing that the heat and light of the summer months would injure those labouring under head complications; others stating that the cold air and dampness of the evenings and nights, and especially rainy weather, would injure those labouring under chest affections; while others affirmed that our convalescents would suffer. I may state that I never attended with greater pleasure a series of cases of fever, than I did in these tents. Ordinary cases did so well, and bad cases proceeded so favourably, that it was a pleasure to all concerned with them. As I was not connected with the admission of patients, I cannot say whether or not there was any choice made by the admitting physicians in the patients they sent to the tents. This I can state, however,—and I refer with confidence to the gentlemen who acted as my clerks at the time (Drs Aitken and Chalmers),—that the number of bad typhus and other cases admitted into the tents bore an equal proportion to that of the other wards; and that on admission, the general character of the cases was similar to what we saw elsewhere. I state distinctly that, *cæteris paribus*, the cases did better in the tents than elsewhere. Those with tendency to affection of the head seemed to do as well, while those labouring under chest affections, as bronchitis, pneumonia, &c., did much better. Our convalescents, too, seemed to like their quarters so well, that we could hardly get them to leave us; which fact is distinctly proved by the table which I have annexed of the duration of the different kinds of cases in different wards. By it we find that the period of residence in the tents is highest both in

typhus and relapsing cases. It will be observed that these tents were only in use during the summer months; and the benefit arising from their use corresponds and bears out an important fact which has been long known to the profession, viz. that a greater number of cases seem to recover in the out-houses, and more especially in country cottages or huts, than do in hospital practice. This observation was long ago made in Ireland, and subsequently by Dr Alison in his account of the fever epidemic of 1826–27; and I entirely agree with him in the bad effects which removal, and especially late removals, have upon the recovery of the patients sent to hospital. In addition, however, to the effects of removal, they are placed in a ward amongst a great number of patients labouring under the same disease; and unless the place is thoroughly ventilated, I am satisfied that the patients suffer by the combination. In the tents we noticed the effects of free ventilation and subdivision of the cases in the most perfect way. It seemed to act as a stimulus to the constitution to make greater efforts to throw off the disease, the complexions of the patients soon assumed a brighter aspect, and a much smaller amount of stimuli was required throughout the disease. When we combine the success of the treatment in these tents with the comfort experienced both by patients and attendants, the little expense that such erections cost, and their being useful on more occasions than one, it would be but justice to give them, in any future summer epidemic, a fair and fuller trial.*

If a building could be produced, which would combine the open canvas covering and free ventilation of a summer tent, with the power of changing it at once and without removal of patients into a substantial winter abode, it would enable those who have the management of temporary erections, on such emergencies, to put more fully to the test the striking result of the statistics of the treatment of fever which I have just laid down.

Some rough ideas, which my experience in these matters enabled me to suggest, have been kindly put into proper shape by my friend Mr Peter Hamilton, architect.

The short explanation which I have annexed will be better understood by reference to the plan.

Supported on square stone bases, a little elevated from the level of the ground, let wooden or cast-metal pillars be erected at regular distances of ten feet, and ten feet high; from the top of each

* In Dr O'Brien's account of the epidemic of 1826–27, he mentions the erection of a shed in the garden of the Meath Hospital, capable of containing 240 patients; also of a series of tents in the lawn, which accommodated 180 more. No mention, however, is made of the result of the treatment in these places.

I am also aware that tents were erected in connexion with some of the hospitals in Ireland, and also in America, during the present fever; and although I have received accounts from physicians in some parts of Ireland of the successful result of the treatment in them, yet I have not been able to procure any statistical data.

pair of pillars let beams be placed, as will be seen in the drawing, for the support of the roof; and also beams laid across the stone bases of the pillars, and a flooring laid down upon them, so arranged that a proper ventilation of air shall take place beneath the floor. The sides are to be composed of square frames, made to fit between the pillars, and to be fastened to them with bolts. These frames are to be composed of boards, with their lower edges overlapping the other. Some are to have windows in them for the purposes of light and ventilation, and others to have the boarding so arranged that it shall shut or open like window-blinds. It will be obvious, therefore, that these pillars being placed at the distance of ten feet, and their height being the same, the ten feet square frames will fit into and between any of them, and that a frame can be placed either with or without a window, or with the moveable boards, according to the pleasure of the architect, or taken away and changed at pleasure. On the roof frames previously mentioned let a canvas covering for the summer months be stretched, and so contrived as to hook up, like the reefs of a sail, for the purposes of ventilation. This canvas covering to be displaced by a new substantial roofing for the winter months, in the shape of frames of wood built in the same way as the frames for the sides of the building, and which are to be bolted on to the roof beams as required. This, of course, can be done in short space of time, and without the removal of the patients.

This must obviously be the most economical, most comfortable, and easiest to put up and take down of all forms of temporary erections, since we find a similar plan adopted by all those who use buildings which require to be removed from place to place; and the advantages which would accrue from the use of such a place over the method of erecting the sheds which have been in previous use are as follows:—

It would be economical in the first erection.

It could be increased or diminished in size at will, according to the numbers requiring accommodation, and without removal of patients.

It could be divided into as many compartments as wished by simply placing two frames together across the ward, which the measurement at once shows, the ward being twenty feet wide by ten high, while each frame is ten feet square.

It combines the most approved and perfect system of ventilation, with the canvas covering for summer and more substantial roof for winter.

It can be taken down and put up in a very short space of time, in consequence of the different parts fastening together with bolts and screws.

It can be laid past for future use in very small bulk, in consequence of the similarity in size of all the parts.

Average duration in Hospital.

Tents. *Females.*	Typhus Fever,	Complicated, 37 days; Uncomplicated, 25 days	aver. 31 days.
	Relapsing Fever,		20·5 ...
	Continued Fever,		22·5 .
		Average,	24·36 days.
Shed F. *Females.*	Typhus Fever,		22·5 ...
	Relapsing Fever,		18·9 ...
	Continued Fever.		
		Average,	20·7 days.
		General average of Females,	22·22 ...
Shed C. *Males.*	Typhus Fever,		22⅓ days.
	Relapsing Fever,		18·2 ...
	Continued Fever.		
		General average of Males,	20·18 days.
Average of Hospital in years 1846–47, in Typhus, Synochus, and Synocha,			31 days.

In the above table the average residence in the hospital, in the tents and sheds, is only 21 days, that of the house generally being 31 days. This may very properly be adduced as an argument in favour of the rapidity with which strength sufficient to enable them to leave the hospital is acquired by patients in those open buildings. I am inclined to attribute, however, the short residence in the hospital in these out-buildings to another cause; and that is, the numbers that we had to dismiss as soon as convalescence was sufficiently established to enable them to bear removal for the purpose of accommodating others. It is true this applied to all the wards of the hospital; but I think it must have been more felt in the extra accommodation than in the house itself, in consequence of the immense numbers that were treated in these buildings. Whatever explanation is adopted, the difference of ten days is difficult to be accounted for. The contagious nature of all the forms of fever of which this epidemic was made up, was abundantly proved by the records of the cases of fever which occurred amongst the attendants.

Of nine physicians acting in the fever wards, three were seized with fever, two having typhus, the other relapsing fever. One died.

Of twenty-two clerks successively occupied in some way or other with the fever wards, twelve had fever; eleven had typhus, one relapsing fever, and one of the twelve having both typhus and relapsing fever. Of the twelve three died.

Of the nurses and others whose duty it was to come near the fever wards, it may be affirmed that none escaped taking one or other form of the disease who had not had it previously, while some had both the prevalent forms of it, viz. typhus and relapsing fever.

The eruptions which have appeared during the course of this epidemic have been of two descriptions, the measly and the petechial.

The measly has been present in nearly every case of typhus, and often served, as it was principally depended on, to characterize the disease. It seemed generally most strongly marked on the trunk of the body; over the epigastric region, or between the shoulders, it was in general to be discovered there, if at all existing on the body. No prognostic character could be drawn from the early measly or typhoid eruption, or from its dullness or vividness, as regards the future mildness or severity of the disease. Its livid colour always marked a bad form of disease. In two cases this measly-looking eruption gradually passed into bright petechiæ, and it seemed to occur in the following manner. The eruption was a vivid one at the beginning, and although having an irregular shape, had a regular equable red colour. Gradually it became punctuated, and at last several of these puncta seemed to run into each other, and to form small petechial ecchymoses. Petechiæ themselves appeared but in a small number of the cases. This eruption was not confined to typhus, but was occasionally seen in the relapsing fever, but only in the first attack.

Much difficulty was experienced in distinguishing, in certain cases, between flea-bites and petechiæ. Thus we observed in certain whole families that every one was covered with purple-coloured marks much resembling ordinary flea-bites, the majority of them having central stigmata, and yet in such numbers that it was impossible for us to suppose that any individual could have been so much bitten. The explanation, I think, was afterwards arrived at. The cases in which the petechiæ were seen were principally those that came in in the greatest state of destitution, who had been filthily lodged, ill-clothed, and worse fed; and it was often observed in three or four members of a family coming in at the same time, and seemed to depend on the vitiated condition of the fluids of their bodies from destitution and want. In this way can be readily explained the numerous cases in which we found some of these petechiæ with central stigmata and some without them in the same person. The purpurous tendency existing in the constitution gave rise to an unusually large ecchymosis around every flea-bite, which otherwise would have been a mere point; in addition to these, however, the vitiated state of the blood was

showing itself in numerous other purpurous spots, or true petechiæ. In fact, those with central stigmata were as good a criterion of the state of the patient's constitution (for it bore no reference to the kind of fever) as the purpurous petechial spots without it.

The complications which the present epidemic exhibited were of the usual varied character to be expected from such a mass of cases. A distinct connection was noticed to exist between the kind of weather which prevailed and the prevailing complications which the cases of fever exhibited when admitted. During the hot weather of the month of June, the number of cases admitted with head affection was remarked, while the changeable temperature and damp weather of the latter end of July and August brought an accession of cases with chest affections. Dr Christison some time ago noticed that the Edinburgh fevers were especially characterized by pulmonary complications; and I have no doubt that inflammatory affections of the lungs and pleura constituted the majority of those who died. This, of course, is attributable in a great measure to the changeable nature of our climate, and especially to the very great prevalence of influenza, which took place during the months of November and December 1847 and January 1848; a great number of the admissions during these months being affected with catarrhs and bronchitis, which complications in old people, and especially in the course of typhus, proved very fatal. The returns of the hospital generally show that in one week there were 52 deaths, and that in the month beginning with the last week in November and three first weeks of December 1847, the total number of deaths in the hospital were 164, the admissions being in that time 514; but there were remaining at the end of the previous week 532, which makes 164 deaths in one week out of 1046 cases, nearly sixteen per cent.

The next set of complications worthy of notice are those which in general constitute the smallest proportion in the epidemic fever of Edinburgh; I refer to intestinal lesions. On this occasion, however, they were also frequent; and Dr Bennett has very properly made the observation, that "this change took place at a time when scurvy and bad diet prevailed, circumstances often known to be associated with this form of fever in France and Germany."

The dothinenteritis prevailed chiefly during the spring and summer months, after which intestinal cases became less common, until the autumn months ushered in a much more extensive series of cases of dysentery. This, too, continued during the autumn and early winter months, and passed entirely away towards the spring of 1848.

I do not propose to enter into any description of the morbid

appearances which have been observed in those dying of epidemic fever. Those presented by the Edinburgh fevers on former occasions have been well described by Christison, Craigie, and others; while the lesions occurring during the present disease have found an able historian in Dr Bennett, who, at the time, held the office of pathologist to the Royal Infirmary, and to whose communication* I beg to refer my readers.

I shall be equally brief as regards the general treatment which was pursued in the typhus cases throughout. Few or any of them could stand general depletion even for serious inflammatory complications. In one or two instances it was tried for pneumonia during the course of typhus and at an early stage of it; and although decided relief was obtained from it, yet the subsequent depression was so great, and so much more stimulants were required towards the close of the disease, that it was generally abandoned for local depletion. In addition to the usual remedies suited to the nature and seat of the local complications, Dr Stevens' Saline Powders were used as the common fever medicine, and I think their effect was clearly exhibited in brightening the colour of the eruption, and making less wine necessary. The cases of typhus, however, were generally of such a low type, that wine was requisite in most cases, and often from an early period of the disease. In the lowest form, carbonate of ammonia, along with considerable doses of camphor and whisky or brandy, produced in some cases decidedly good effects.

The treatment of the relapsing cases was very different. The inflammatory complications stood blood-letting, both general and local, well; and we did not hesitate to try to assist the critical diaphoretic evacuation by remedies of the particular class. I cannot say that any advantage was gained by this practice. The critical evacuation was often longest of arriving in those cases where, from the sufferings of the patient, we had most wished sleep to forward the critical evacuation. Much attention was paid, especially towards the beginning of the epidemic, to cut short the disease, and to save the patients from a relapse. Strict confinement to bed, a strict regulation of diet, low diet, common and full diet, quina, biberine, arsenic, were all tried in a certain series of cases, but without the least effect in warding off the relapse, not even in prolonging its recurrence for a single day. It came like a fit of ague almost to an hour.

As in intermittent fevers, the spleen and liver always suffered from congestion during the attacks of this disease. Soon after the rigor which ushered it in, an enlargement of these organs could be distinguished; they continued often even to increase in

* Bennett's Journal for October 1847, p. 299.

size, until, like the fever, they were resolved by the critical evacuation. It was astonishing how soon these enlargements, especially of the spleen, disappeared, after the crisis of the disease. In some instances, where the circumference of the dull edge of the organ had been marked on the skin by a line of the nitrate of silver, the next day, after the critical sweat, it had entirely disappeared, and been reduced to nearly its natural size.

One instance was so remarkable as to deserve especial notice. It was that of Martha Gifford, aged 28, admitted on the 28th of October with relapsing fever. She had the usual critical sweat on the 5th day, relapse on 14th, and second crisis by diaphoresis on the morning of the 17th day. On the afternoon of this day she observed a fulness and hard swelling on the epigastrium and left hypochondriac regions, which she attributed to the large quantity of water she had drank during the relapse. At the visit on the 12th November, the tumour was carefully examined. It was slightly painful to the touch; had a soft boggy feel, with circumscribed edges, and situated on the left side of epigastrium and left hypochondria, and extending from the xiphoid cartilage to about two inches above, and to the left side of the umbilicus and crest of the ileum. The pulse about 86; tongue clean; bowels regular, but appetite impaired; no thirst. There was no pulsation in the tumour, nor was any sound to be heard with the stethoscope. At the suggestion of Professor Alison, who was kind enough to see the case, the tumour was blistered, and she had pills of calomel and opium internally, with solution of the iodide of potass. Next day no diminution had taken place in the tumour, and she was suffering a good deal from the blister. The day after, however, at the visit, the tumour had wholly disappeared, leaving under the ribs, and in the direction of the spleen, a slightly-increased firmness, with slight tenderness on pressure, which left no doubt that the tumour had been only an enlarged, engorged spleen connected with the peculiar kind of fever. She was dismissed cured on the 19th November. No discharge of blood or other untoward symptoms followed the diminution of the tumour.

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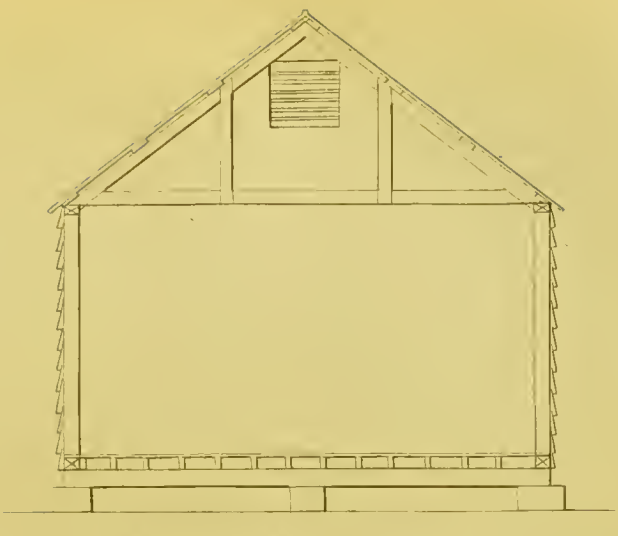

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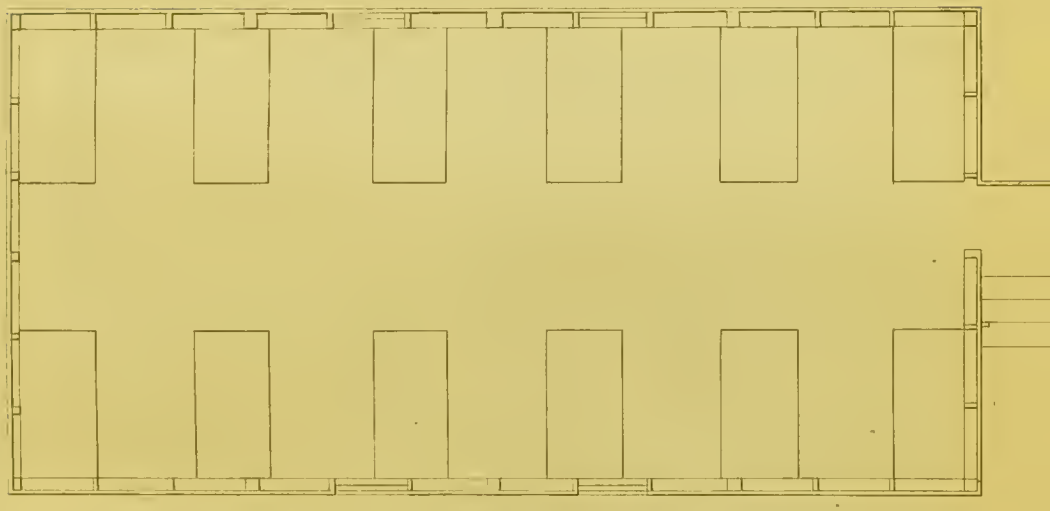

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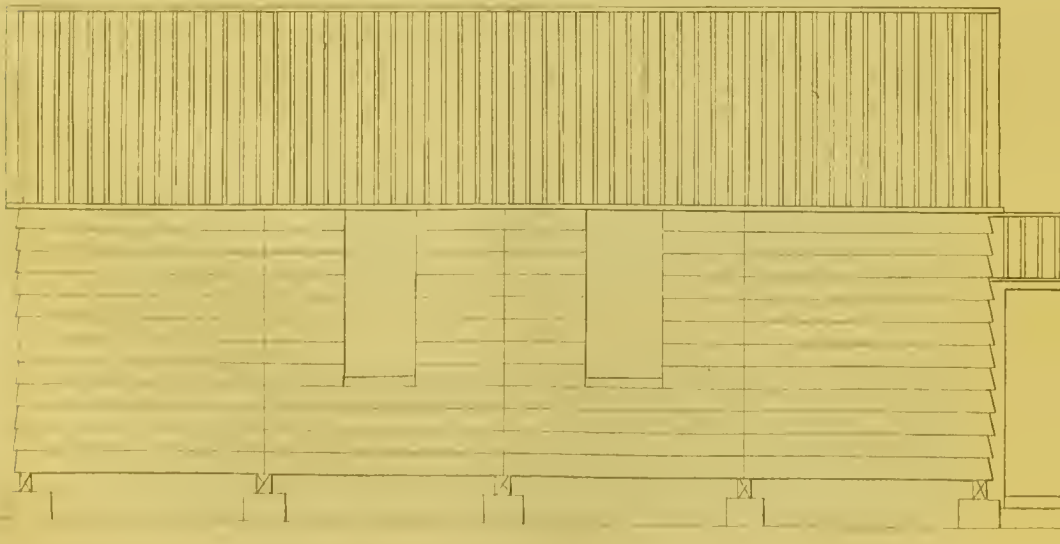

ELEVATION

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